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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WINKLER, ULRIKE	
ART UNIT	**PAPER NUMBER**
1648	

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17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/734,836	Applicant(s) LUO ET AL.	
	Examiner Ulrike Winkler	Art Unit 1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-13,15-19,23-33 and 70-106* is/are pending in the application.

4a) Of the above claim(s) *8-13,15-19,23-33,40-72 and 74-79* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *73, 80-106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Amendment filed November 24, 2003 (Paper No. 16) in response to the Office Action of May 23, 2003 is acknowledged and has been entered. Claims 73 and 80-106 are pending and are currently being examined.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Drawings

The objection to the drawings **is maintained**, please see Notice of Draftsperson's Review attached to the Office Action of Paper No. 15. Correction is required.

Claim Rejections - 35 USC § 103

The rejection of claims 73 and 80-106 under 35 U.S.C. 103(a) as being unpatentable over Gonda (U.S. Pat No. 5,380,830, IDS Paper No 6), in view of Poeschia et al. (WO 99/15641, IDS Paper No. 8) and Temin et al. (U.S. Pat. No. 5,554,524) **is maintained** for reasons of record.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant's arguments are that the Gonda and Poeschia et al. when taken as a whole teach away from the instant invention. In contrast to applicant's assertions; disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See *In re Susi* USPQ 423 (CCPA 1971). A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. See *In re Gurley* 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) [See MPEP 2123]. A prior art reference may be considered to teach away when "a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley,* 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). General skepticism of those in the art – does not amount to teaching away -- is also "relevant and persuasive evidence" of nonobviousness. *Gillette Co. v. S.C. Johnson & Son, Inc.* , 919 F.2d 720, 726, 16 USPQ2d 1923, 1929 (Fed. Cir. 1990). In effect, "teaching away" is a more pointed and probative form of skepticism expressed in the prior art. In any case, the presence of either of these indicia gives insight into the question of obviousness.

In this instance the Gonda reference provides the full-length sequence of two proviral BIV clones. The reference teaches the regions of similarity between BIV and HIV (see figure 6 and columns 16-18). In order to perform any kind of recombinant technology the underlying sequence must be available at the time of the invetion. The reference further provides in table 2 the BIV protein products and their HIV equivalents. Therefore, the reference provides information regarding the BIV construction in comparison to the construct of the well studied HIV genome.

In the prior Office Action the statement that "BIV and HIV are most similar" was made, this statement has been interpreted by Applicants to be strictly based on the nucleic acid structure. Applicant's arguments in the November 24, 2003 response are that BIV and HIV have a low percentage homology based on the nucleotide sequence and that BIV contains two additional sequences that encode two additional ORF's. Applicant has provided an additional reference Exhibit A (Gonda et al. 1994, virus research) to further indicate the genetic difference at the nucleic acid level between BIV and HIV. The Office however intended the prior statement "BIV and HIV are most similar" to be in reference to the genome organization which although not identical has many similarities as discussed in the Gonda (U.S. Pat. 5,380,830 and Applicant's Exhibit A) The Exhibit A provided Applicant's, indicates that the Tat proteins of BIV and HIV are capable of trans-activating each others each other's LTR's, although the level of transactivation is significantly less than in the homologous system. The locations of the BIV and HIV-1 TAR's are similar in their respective LTR's. There is nothing in the Gonda reference that would indicate extrapolating information from the HIV system will not work using the BIV clones. In reading the Gonda reference the artisan would not have been discourage from using BIV as a vector construct because the ordinary artisan would not have thought that the BIV construct would behave unpredictably. The ordinary artisan after reading Gonda would be in possession of the entire sequence of an infectious BIV and the nucleotide positions the equivalent HIV proteins.

Poeschia et al. teaches the use of non-primate lentiviral vector (feline and ungulate) as a safer alternative than primate lentiviral vectors for the propose of introducing a transgene into a cell. Applicant's argument in the November 24, 2003 response is that the reference only

exemplifies FIV construct and therefore teaches away from using BIV. Applicant's argue that Poeschia et al. state on page 20 "the practical applicability if their invention also benefits from the fact that lack of tropism of pathogenicity in humans is better established for FIV that any other non-primate lentivirus". In contrast to applicant's assertions; disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See *In re Susi* USPQ 423 (CCPA 1971). Non-primate (feline and ungulate) lentiviruses may provide a safer alternative than primate lentiviral vectors, but their use is complicated by the relative lack of knowledge about their molecular properties (see page 3, lines 13-15). The knowledge regarding the molecular properties of BIV is provided by the Gonda reference. FIV is also genetically and antigenically very distant from the primate lentiviruses. Nucleotide sequence comparisons of FIV indicate a closer relationship to the ungulate lentiviruses than to HIV and SIV (See page 4, lines 21-23). The reference teaches the use of non-primate lentivirus packable nucleic acid, comprising a heterologous target nucleic acid operably linked to a promoter (see page 23 line 25 to page 24, line 28, and figure 1-2). The reference also suggests optionally including a portion of the *env* gene sequence into the packagable nucleic acid. The reference teaches the production of virion particle therefore *gag/pol* and *env* are present in the product. The reference teaches the use of the non-primate gag/pol sequences as well as the use of a VSV-G glycoprotein construct for the envelope.

Temin et al. teach chimeric retroviral vectors containing the long terminal repeats (LTRs) from complex retroviral (e.g. bovine leukemia virus (BLV); human immunodeficiency virus (HIV)) cis-acting regulatory sequences (e.g. att; primer binding site (PBS); encapsidation site (E), and polypurine tract (ppt)) and coding regions. Cells transfected with these constructs are

able to produce retrovirus particles (see figures 4-8, and column 5, lines25-45). Applicant's argument in the November 24, 2003 response is that the reference does not limit itself to the use of lentiviral construct. In contrast to applicant's assertions; disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See *In re Susi* USPQ 423 (CCPA 1971). In this instant the Temin et al. reference indicates that the more complex retroviral sequences which includes the lentiviral sequences can be used (see column 6, lines 47-64) for the construction of retroviral vectors.

It remains the Offices position that it would have been obvious to utilize a a non-primate lentiviral construct for the expression of transgene because they would provide a safer source viral particles that can be used to introduce therapeutic nucleic acids constructs into human subjects because there is a reduced risk of recombination to produce an infectious virus as suggested by Poeschia et al. Gonda et al. provides the requisite blue print regarding the BIV nucleic acid sequence. Temin et al. utilize a retroviral construct that utilizes LTR sequences, a packaging sequence and a polypurine tract. Therefore the instant invention is *prima facie* obvious in view of the cited art.

Conclusion

No claims allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ulrike Winkler, Ph.D. whose telephone number is 703-308-8294. The examiner can normally be reached M-F, 8:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached at 703-308-4027.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for informal communications use 703-308-4426.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

ULRIKE WINKLER, PHD.
PATENT EXAMINER

2/23/04